

Student perspectives on self-directed learning

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Abstract: Undergraduate student perspectives regarding specific factors associated with self-directed learning were collected through eight focus groups. A total of 80 upperclassmen provided input revealing three emergent themes in the focus groups responses: (1) Student-Controlled, (2) Faculty-Controlled, and (3) Administration-Controlled Facilitators and Barriers to promoting self-directed learning. Students acknowledged much of their learning was within their control. However, they did note that faculty and administrators have a significant impact on their desire and ability to learn. In an effort to empower students to direct their own learning processes the results of this study have been integrated into campus assessment initiatives including the development of a student organization to provide a consistent, student-led forum for students to voice their opinions and concerns about their learning processes and assessment.

Keywords: self-assessment, self-directed learning, student success, student organizations

Introduction

Academic institutions are driven to increase retention and improve academic success. To that end, institutions attempt to effectively connect with students at various points within their academic careers to provide interventions, if needed, to promote retention and success. A variety of published tools gather and summarize information from students (e.g. National Survey of Student Engagement or Map-Works®), and while it is challenging to gather information from all students at key points in the semester, sometimes simply asking students to outline their reasons for coming to the university and plans for continuing their education provides useful information related to student learning outcomes (Guiffrida, Lynch, Wall, & Abel, 2013). Perhaps two of the most important questions institutional administrators can ask of their students are “How do you direct your own learning and how can we best help in that effort?”

Although universities can provide extrinsic motivations to students, such as grades and a positive campus environment, it may be more important to determine ways to empower students to direct their own learning processes (Flint & Johnson, 2011). By encouraging students to reflect on their own learning processes, evaluate the depth of knowledge they have on a subject, and identify areas that require further development, universities are increasing the potential success of their students (Brown, 2004-2005; Nicol & Macfarlane-Dick, 2006). Clearly, when students are intrinsically motivated to succeed, they will perform better in high cognitive tasks (Pink, 2011).

According to the constructivist theory of learning, students build their own understanding of a subject through engaged activities, rather than passively accepting information presented to them. Instructors can support students’ constructivism by asking good questions, listening to

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students' needs, and creating environments that allow students to make choices that reinforce the overall goals for courses (Reeve, 2009). Conversely, when rigid assessment tools are used, students lose control and autonomy over their learning, reducing their intrinsic motivation (Flint & Johnson, 2011).

Self-determination theory posits that motivation ranges from extrinsic (e.g. grades or wanting to please) to intrinsic (e.g. satisfying personal goals) (Ryan & Deci, 2000). Students become intrinsically motivated when learning tasks give them a sense of *autonomy*, *competence*, *relatedness*, or *purpose*. Guiffrida et al. (2013) found students' self-reported grade point average and intent to persist were positively and significantly related to students' focus on subjects or activities closely related to their interests (*autonomy*) as well as an internal desire to challenge themselves (*competence*).

Fortunately, instructor attitudes and class structures can support students' intrinsic motivation. Instructors who have high expectations and truly believe that their students can meet them are likely to provide the necessary support for student success. Similarly, when students feel instructors believe in their abilities, they often are more motivated to achieve (Herman, 2012). Another way to encourage students to build their own knowledge is through sustained collaborative activities (*relatedness*). Learning occurs as students present information to and assess each other with the aim to create new knowledge through work on shared projects (Paavola & Hakkarainen, 2005). However, for peer teaching to be successful, instructors must provide significant guidance to the learners (Kirschner, Sweller, & Clark, 2006).

Encouraging students to become involved in developing course requirements (*purpose*) also increases their internal motivation to learn (Herman, 2012). The more control students have in their learning process, the more they sharpen their ability to sort through presented information as well as critically reflect and analyze their performance (Trigwell & Prosser, 1991). Additionally, student-directed assessment can be utilized as a learning tool that can positively impact self-reflection and analysis (Dochy, 1992; Glaser, 1990).

Because university faculty foster critical thinking in students through collaboration and mentoring (Sanders, 2006), academicians have the opportunity to support students on a lifelong path of self-directed learning and assessment. The current climate of increasing the engagement of students in higher education provides an optimal environment to incorporate student self-assessment in to the university curriculum. This qualitative research was therefore directed towards having students provide input on the most important factors they and their university can influence to encourage self-directed learning and self-assessment. The goal of the study was to explore students' thoughts regarding their own self-directive learning and explore ways to facilitate further self-directive learning. The objectives of the study were to (1) collect student data on their learning and support for their learning, (2) review these data for emerging themes, and (3) utilize the review of these data for institutional improvement.

Methods

Research Questions: The primary research questions for the study were: (1) What promotes self-directive learning in our students and (2) How can our institution facilitate self-directive learning in our students? There were no preconceived hypotheses for this study as it was guided by a grounded theory approach as outlined by Strauss and Corbin (1998).

Participants: Participants included 80 undergraduate upperclassmen recruited from the College of Business and the College of Health and Human Sciences at a large Midwestern

university. A convenience sample of selected courses within these two colleges was used. Although this was done, in part, because the researchers were affiliated with these colleges, it was unlikely to have affected the results given that four of the five coders were from the College of Liberal Arts and Sciences. However, convenience sampling, a nonprobability sampling method, does limit generalizability of findings (Babbie, 1998, pp. 194-195) and thus may not reflect the perceptions of individuals outside of the sample.

Data Collection: Information was collected through eight focus groups held in spring 2008 to address a variety of questions related to student experiences with learning and assessment. The focus groups were facilitated by teams of undergraduate marketing students trained as moderators and recorders of focus group data, with oversight by the first author. Focus group sizes ranged from 8-12 participants divided between business students (39 participants in 4 groups) and health and human sciences students (41 participants in 4 groups). Focus groups were chosen as the primary research method in this study because the researchers wanted to better and quickly understand, from the student perspective, how students could be encouraged to engage in self-directed learning and assessment at this particular institution. This required in-depth, open-ended questioning of students. It was the belief of the researchers that this would be best accomplished in group settings with peer facilitators. The Association for Institutional Research (AIR) has expressed support for this belief in a recent publication (Billups, 2012).

Focus Group Questions: The primary focus group questions were (1) What goals, if any, have you set for your learning in college and how do you monitor your progress on those goals?; (2) How can students be involved in directing and measuring their own learning in meaningful ways?; (3) What are some of the ways you and other students can identify gaps in your learning?; (4) In what ways could you and other students redirect your efforts to close these gaps and improve your learning?; (5) What obstacles, if any, do you think get in the way of directing and measuring your learning?; and (6) How can faculty and staff support students in their efforts to direct and measure their own learning processes? Although moderators introduced topics, students were allowed to go off-topic and brainstorm within limits, allowing for the widest variety of ideas. Throughout, the moderators conducted respondent validation or “member check” by summarizing the information and questioning participants to confirm accuracy. Social interactions provided by the focus group environment encouraged students to describe key aspects of the university’s role in creating environments in which students could direct their own learning processes and self-assess their learning outcomes.

Focus group facilitators transcribed the data from the recorded sessions and their notes. Data analysis was conducted using a grounded theory approach as outlined by Strauss and Corbin (1998). This inductive approach is suitable when researchers are gathering data on a particular phenomenon with no pre-conceived hypotheses but, rather, with the intention of observing patterns across individual observations and subsequently developing themes among these patterns and proposing general explanatory statements (Potter, 1996). In this case, three independent university researchers coded the transcriptions. Each transcript was double-coded, and the team used an iterative approach to create over 100 observational codes. Where there was disagreement on the codes, the third independent researcher was called in to rectify this conflict. These codes were collaboratively collapsed into 58 codes that fit beneath 10 key dimensions of three overarching themes. As a validity check on the coding, the eight focus group transcripts were then once again double-coded by two graduate student researchers working independently and using this coding schema. As needed, codes were revised to address input from the two student researchers. This last check helped to assure that the researchers understood the students’

meanings in their focus group comments by including a student perspective in the coding process.

Results

Results revealed three emergent themes in the focus groups responses: (1) student-controlled, (2) faculty-controlled, and (3) administration-controlled facilitators and barriers to self-directed learning. Within these themes, the inter-rater reliabilities on the coding of ten dimensions, ranging from .72 - .91, were within acceptable limits, that is, above .7 (Steiner, 2004). In most cases, the examples cited for each dimension could be seen as a facilitator or barrier to self-directed learning for the students, depending on the manner in which it was discussed. These examples and dimensions are listed in Tables 1-3 as both facilitators and barriers.

Student-Controlled Facilitators and Barriers

Student-controlled facilitators and barriers were defined as key dimensions students identified that helped or hindered student self-directed learning and were within student control. Students identified five key dimensions for self-directed learning: (1) being proactive in class, (2) being proactive with other students, (3) being proactive outside of class, (4) having good study habits, and (5) metacognitive factors (see Table 1).

Table 1

Student-Controlled Facilitators and Barriers to student self-directed learning

Facilitator/Barrier	Frequently Cited Example
Being Proactive in Class	Attending class Taking good notes Actively participating in classes
Being Proactive with other Students	Participating in student organizations Networking with other students Forming study groups
Being Proactive Outside of Class	Talking to professors to identify learning gaps Networking with people in the field
Good Study Habits	Time management Building a routine to assess own learning Minimizing excessive socialization
Metacognitive Factors	Understanding own learning styles

Being proactive in class included being actively involved in class which, of course, was predicated on attending class, as many students noted. Taking good notes and actively participating in classes were also frequently cited as means to promote self-directed learning, a finding presented in previous research (Yazdjian, Toews, Sevin, & Purswell, 2008). One student said, "*actually going to class*" had been key to becoming more proactive. Another said,

"You have to show up to class and take notes." Another student said, *"I...get the PowerPoints if they are there, and I write the notes down on it because that's how I learn."* One student talked about actively participating in class when he said, *"You have to take some ownership here for what you are trying to learn...you have onus for yourself."* Another noted, *"It's really on the student to take the most away from their college experience because the professors aren't going to be able to do that for you."*

Being proactive with other students was expressed as involvement in student organizations, networking with other students, and forming outside study groups. Comments from students in the current study supported prior research (Kuh, Kinzie, Schuh, & Whitt, 2005) by indicating they clearly saw interaction with their peers as a path toward greater understanding of their own learning processes. One student noted, *".... getting involved in organizations I know has really helped me (direct my own learning)."* Another stated, *"I think meeting different people, getting variety and diversity, um, helps me have a good learning experience."* From another, *"The networking thing is just so important today."*

Herman (2012) outlined how peer interaction can increase students' internal motivation by developing their own sense of competency, and that of their peers. This was evident in the present study in that many students viewed study groups as a way to direct learning and self-assess by comparing with peers, even when students were at different levels of understanding, *"If you can teach it, then you know it really well."* However, some students found study group barriers to learning, *"Some study groups are hard to actually get some studying done because everyone's on their own page. If someone doesn't do the required reading material, then one person is behind, and three people are ahead, unless that person doesn't mind you going ahead, it kind of holds everyone back."* Van Etten, Pressley, McInerney and Liem (2008) also observed that study groups can be both a facilitator and a barrier to student learning.

Being proactive outside of class for these students primarily meant talking to professors to identify gaps in learning and networking with people in the field. *"Going up to the teacher and asking questions about like why you missed it (an exam question) and what they were intending"* was noted as a key way to identify gaps in learning, which was consistent with prior research (Yazejian et al., 2008). Another stated, *"Or talk to someone else in the field ... that knows for sure if you are not going to use this technique at all."* One student commented about networking in the field, *"I just think it helps you decide what you want to learn."*

Similar to Robbins, Lauver, Davis, Langley and Carlstrom's (2004) suggestion that good study habits enhance academic performance; students discussed the need to focus on academic material. Time management and creating a routine utilizing a variety of study methods were frequently cited as facilitators in this area, while too much time spent socializing was the number one obstacle to success. Time management was emphasized by one student: *"Some classes are like; you have to be on top of your readings, on top of your lectures, and studying all the time to really grasp the information."* In describing a schedule of self-assessment, another said, *"I will go over my notes and either read or re-write them or re-type them and that's my study guide, I'm doing (it) myself."* Commenting on excessive socialization as a barrier to self-directed learning, one student said, *"I go out too much. It really hurts me in terms of building my knowledge of the field, I just go out and then I don't have the time or desire to figure out what I need to be learning."*

Last, under student-controlled factors, students cited metacognition issues. Consistent with students in Van Etten et al.'s (2008) study, many students stated that understanding their own learning styles and setting personal learning goals were crucial facilitators, while a lack of

motivation was the most often noted barrier. “*I think it’s also important to know your own individual learning style.*” Setting personal goals was important to students, “*I’ve enjoyed ...taking classes that didn’t affect my major...one of my main goals was to get a taste of everything.*” Many students noted that staying motivated to learn and self-monitoring that learning were crucial, “*There is always something better to do than your school work, always. So you kind of need to stay focused because it is really easy to get off that path.*”

Faculty-Controlled Facilitators and Barriers

Faculty-controlled facilitators and barriers were defined as key dimensions students identified that helped or hindered student self-directed learning and were within faculty control. Students identified three dimensions controlled by faculty that impacted directing their own learning and self-assessment: (1) class structure, (2) curriculum design, and (3) professorial attitudes and traits (see Table 2).

Table 2

Faculty-Controlled Facilitators and Barriers to student self-directed learning and assessment

Facilitator/Barrier	Frequently Cited Examples
Class Structure	Attendance policies Clear and relevant grading structure
Curriculum Design	Job shadowing opportunities Independent projects Internship and clinical opportunities
Professorial Attitudes/Traits	Faculty advising and support Faculty use of real world experiences Professorial enthusiasm

Similar to Van Etten et al. (2008) who stated that “a good syllabus in a course is key to student planning,” students indicated that classes with attendance policies and clear and relevant grading structures helped them learn, “*She weighs it on you to take attendance, I mean it’s one hundred points.*” Regarding grading structures, one student commented, “*It helps when a professor has a clear grading structure.*” Another stated, “*The best is when the grades are an indicator of how much you’ve actually learned.*” This distinction between grades and learning is a concern for some students, “*I kind of feel like the teachers sometimes always focus on grades rather than what you’ve learned.*” Another stated, “*The grades matter when you are doing it, but afterwards, as long as you got something out of it, that is...most important.*”

Students believed the curriculum design of the specific courses was a major predictor of their ability to manage their own learning and self-assessment. Job shadowing was helpful because students were able to gain “*practice and experience...just by learning and being there.*” One student commented that she was helped by “*shadowing... people from geology departments even though it wasn’t really specific for the class. I got to see other departments, how they work. Especially since our major is so broad and I don’t know exactly what I want to do with a job (shadowing helps) in the long-term...I see different positions.*” Although most students reported

they had many group projects in their courses, many indicated independent projects would better help them self-direct their learning and self-assess. This was summed up by one student who said, "*I like more independent projects because when you go to your job, it's not going to be like, well, what is the answer? If you already get some kind of experience like, well, here's your assignment, do the best you can, give it back to me as a memo or a report, I think that might be a little more beneficial (than a group project).*" In regards to internship and clinical opportunities one student noted, "*you have had like some real world experience... you can assess yourself (and say) oh, I really need to be paying more attention to this...you need to be able to pick out what you really need to learn...when you are given a real situation, you can kind of say, well, that is what's important.*" Several students identified internships or clinicals as the preeminent goal of their time at the university, one stating, "*Everything I do is to get that internship.*"

Professorial attitudes included faculty advising and support, use of real-world experiences, and professorial enthusiasm. These factors were also related to student motivation in Van Etten et al.'s (2008) study. One student commented on a faculty member giving her advice and support to enroll in a course she felt she needed that was unavailable at the institution, "*I had talked to Dr. X about going to (another institution)...because...they don't have those classes here...they'll work with you on it. So that's an option (to direct your own learning process).*" Students appreciated it when professors used real world experiences in the curriculum "*My roommate is an [allied health] major and everything she does is real world stuff, like tests and working on cadavers.*" Another commented, "*For me, a better way of learning...is how it's going to be, um, more involved in reality.*" Many students commented on professorial enthusiasm as a major impetus to be more involved in their own learning processes. "*I learned so much from that class like, I could use it in other classes, and he made you want to come to class....I felt that I could get up and interact with something, interact with the class, and it was because of him.*"

The results of this study support Gruiffrida et al's (2013) findings that students who sought faculty/student relationships were more internally motivated to learn, "*When you become a friend of professors or mentors, whatever, you are not gonna wanna fail, because they are gonna be like 'what's going on?' You know, it makes, at least for me, makes me wanna try actually harder.*" Conversely, a lack of enthusiasm by a professor can have a negative effect on a student's willingness to engage in self-directed learning "*My motivation [for learning and self-assessment] gets cut when a professor doesn't seem that interested, or he is kind of just lecturing, lecturing, lecturing, I don't feel like studying...*"

Administration-Controlled Facilitators and Barriers

Administration-controlled facilitators and barriers were defined as key dimensions students identified that helped or hindered student self-directed learning and were within the university administration's control. Student responses revealed two key dimensions of administration-controlled facilitators and barriers: infrastructures and resources, and incentives for students. Students cited scheduling of courses, class size, faculty workload, and access to technology as factors related to self-directed learning and self-assessment. The second key dimension in this area was identified in the college of business students' responses but was not present in the health and human sciences focus groups. This was incentives for student involvement in directing their own learning processes and undertaking self-assessment (see Table 3).

Table 3

Administration-Controlled Facilitators and Barriers to student self-directed learning and assessment

Facilitator/Barrier	Frequently Cited Examples
Infrastructure and Resources	Scheduling of courses Class size Faculty workload Technology access
Incentives for Students	Rewards Recognition

Students noted lack of course availability as a barrier, “*It makes it hard to take classes cause they are only offered in the fall or the spring... They always fill up fast, so if you miss it, you are like a whole year behind cause the classes are like prerequisites for others so like in that way it really holds you back.*” Scheduling of a specific course also was noted as impacting students’ ability to self-direct and self-assess learning. “*Well, even if we were allowed to have our internship in between the junior and senior year, ...if you’re able to do that, you’re able to go back and say, ‘Maybe I should take this elective or maybe I should take this class again because I don’t understand it, you know, kind of like put yourself-in there, see how you do in the real world and then go back to the class and do what you need to do.*” Several students thought the administration could plan better, “*They know how many people are looking to graduate in May, they know how many people are gonna have to sign up for these classes, so they should know they need to have more availability for these classes.*”

Similar to the students in Van Etten et al.’s (2008) study, large class sizes were noted as impeding self-directed learning and self-assessment, “*In an auditorium you are not going to raise your hand and stop the class for three minutes to answer your question, it’s like you know, two hundred and fifty people, you don’t want to, at least I don’t want to, ask any questions.*” On the other hand, small class sizes facilitated self-directed learning and assessment, “*you have to get involved if it’s a small class, you have to talk it through so I think in that case, I understand it a lot better*” and “*if the professor has thirty people, they are going to make sure you know the info, because they are going to look at you directly, because you are right in front of them.*” Heavy faculty workload was cited as a barrier to utilizing faculty as a learning resource. “*It doesn’t help that we have...three teachers. Yeah we only have three teachers and they are like doubling as teachers and advisors...they all have huge workloads for classes.*”

Technology was seen as a facilitator and a barrier depending on the student’s college. Business students enjoyed a new building with increased technology, “*we have all the smart classrooms, all the technology*” and “*...there’s lots of computer labs.*” These students acknowledged they benefitted from their new facility, “[across campus] *people have to fight for a computer*” and “*those classrooms are uncomfortable...I would not like to go there for four years.*” A lack of access to technology was seen as impeding the self-directed learning process, “*I know one of our professors in our lab, she said if she could possibly get, you know 20 machines in the class, she could teach us so much. And that’s what she wants to do but the school is not willing to give her the money to get the machines.*”

Incentives for students were suggested by two of the business focus groups. Cash

rewards or other forms of recognition seemed most likely to compel to these students to engage in self-directed learning and assessment. “*The reason why we are all here right now is money. We...wouldn't be sitting in a marketing class for fun. I think money motivates you and getting a good job.*” Another commented, “*We should get our name like on a plaque in the College of Business or we're on the television like all the time. [Group laughing] I'm serious, you know, recognition. Maybe cash rewards.*” Van Etten et al. (2008) also reported that rewards and the physical environment affected motivation. However, students in their study indicated external rewards were rare (e.g. admission to graduate school), so they tended to provide realistic self-rewards.

Conclusion and Discussion

The purpose of this study was to explore students’ thoughts regarding their own self-directive learning and explore ways to facilitate further self-directive learning. By asking juniors and seniors to reflect on their successes as students, we hoped to determine factors that impeded and enhanced positive student outcomes. Three primary themes emerged from analysis of data collected in the eight focus groups undertaken with 80 student participants from the business and health and human sciences colleges on campus: (1) Student-Controlled, (2) Faculty-Controlled, and (3) Administration-Controlled Facilitators and Barriers to self-directed learning.

Students indicated that being proactive in class, being proactive with other students, being proactive outside of class, maintaining good study habits, and paying attention to their own learning habits did facilitate their learning. Students knew they needed to actively participate in classes, network with other students, talk to their professors, have good time management, set personal goals, and actually go to class in order to succeed. These are not new ideas (Flint & Johnson, 2011; Herman, 2012; Van Etten et al., 2008; Yazedjian et al., 2008). What was new for many of the participants was that they were being asked to consider how these student-controlled actions impacted their own self-directed learning processes and assessment. It was a new way of thinking about learning for some of them but, once they understood, the students volunteered a long list of student-controlled actions related to engagement in self-directed learning. Therefore, it seems clear that while self-directed learning might not be the first thing students think of when determining their own academic success, they do understand that it can play an important role.

Students stated that a great deal of the responsibility for self-directed learning lay at their feet. One student said, “*You have to take some ownership here for what you are trying to learn.*” However, they strongly believed the environment which promotes self-directed learning (or not) is largely the product of the actions of faculty and administration. Students identified critical faculty-controlled dimensions in this process, including class structure, curriculum design, and professorial attitudes and traits. Although these were external factors, they did have an impact on student’s motivation to study and succeed as exemplified in one comment, “*my motivation (for learning and self-assessment) gets cut when a professor doesn’t seem that interested, or he is kind of just lecturing, lecturing, lecturing, I don’t feel like studying...*”

The list is straightforward: self-directed learning and self-assessment are facilitated by professors who have clear and relevant grading structures, offering job-shadowing and internship or clinical opportunities, are supportive of students and enthusiastic about teaching and learning. Good teachers know these are good practices, but what they may not know is how important students regard these actions to be in empowering self-directed learning and increasing the intrinsic motivation of their students.

Likewise, administrators try to make student-focused decisions but may not realize how prominent students regard administrators role in facilitating or blocking self-directed learning through scheduling courses, determining class sizes, setting faculty loads, and developing budgets for classroom technology. As with good teachers, good administrators know these are important to student success (Kuh et al., 2005) but may not be aware of how strongly students perceive the impact on their ability to direct their own learning.

Another finding of note is that not all students would be more motivated to engage in these processes if administrators provided incentives. This is an important reminder that “one-size-does-not-fit-all” when it comes to motivating students. Student motivation and success are unique experiences for each student (McCune & Entwistle, 2011). In order to most effectively empower students in their own self-directed learning, institutions must directly ask students about their goals and plans (Guiffrida et al., 2013).

Student comments supported the tenets of self-directed motivation theory. Specifically, students noted that learning tasks that gave them a sense of autonomy, competence, relatedness, or purpose did increase their motivation to self-direct their own learning. For example, students were grateful for opportunities to focus on topics that interested them (autonomy). They commented on instructors who discussed ‘real life’ examples and indicated the effectiveness of internships in helping them self-direct their own learning.

For the most part, students felt they had the ability to succeed (competence) but believed the number of available social activities often pulled them away from academics. One student noted that combining the social aspect of college life with studying was effective, “*If she’s gonna go to the library with me, then I’ll go for real, most of the time it’s better if you have your friends do it with you.*” In terms of relatedness, students viewed group work as potentially helpful. However, the format of the groups and the assignments were important for students to feel that everyone benefitted. Ultimately, when students felt they had control over their learning (purpose), they extended more effort resulting in greater academic success.

Future Directions

This focus group study supports previous research on the importance of including student voices in assessment on campus. Students have presented specific factors they believe affect their ability to self-direct their own learning. They described learning environments that best facilitate (or limit) a student’s ability to self-direct and self-assess their own learning. Future empirically designed studies can further support the development of real-world academic solutions.

A limitation of this study was the lack of demographic information on the participants as well as the students’ grade point average. Guiffrida et al. (2013) indicate race/ethnicity and gender affect the factors that influence internal motivation in students. Therefore, it is likely that there will be differences across the student population in terms of individual facilitators and barriers to self-directed learning and obtaining this information in future studies will be important.

Further, this study relied on data from just two colleges, the College of Business and the College of Health and Human Sciences. Between these two colleges, at least one difference emerged; business students were more interested in external incentives for learning than were health and human sciences students. Rewards have been cited as a motivating factor in other studies. For example, Van Etten et al. (2008) reported students set up self-rewards that were

helpful in motivating their success. Repeating this study with a broader sample might produce more robust themes across all disciplines.

This study was conducted at a large public university with an extremely diverse student body. It is possible the results are not generalizable to students at other types of institutions (e.g. private elite schools or smaller state schools). However, there is one outcome that can be generalized. Students have an important voice in defining their own learning processes.

Findings from this study have been shared with our campus community. Discussions arising from these findings have led to greater awareness and changes associated with self-directed learning and self-assessment, including the development of a Student Advisory Council on Learning Outcomes (SACLO). SACLO's goal is to provide a consistent, student-led forum for students to voice their opinions and concerns about their learning processes and assessment. SACLO aims to create an environment in which the path to increasing self-directed learning and self-assessment in our students is a shared one. The findings of this and other studies strongly indicate that while students must play the primary role in this effort, faculty and administrators must support them by creating an environment conducive to this endeavor.

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